

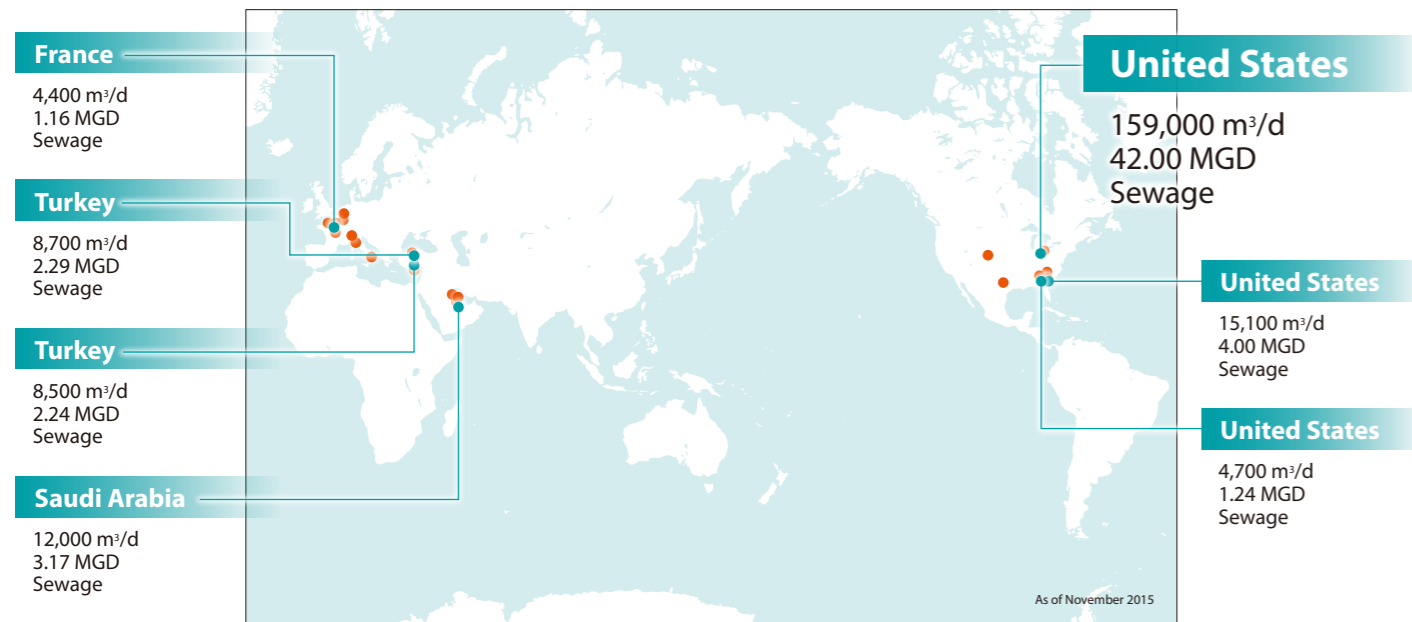
Unit Specification

The SP series has several unit types with different unit heights which can meet a **wide range of water depth requirements for retrofit projects.**

Unit Type	Total Membrane Area	Dimensions			Weight (Dry)	Required Min. Water Depth*
		Height	Width	Length		
SPC200	200 m ² / 2,153 ft ²	1,877 mm / 6.2ft	944 mm / 3.1 ft	2,186 mm / 7.2 ft	569 kg / 1,255 lbs	2.3 m / 7.55 ft
SPC300	300 m ² / 3,229 ft ²	2,401 mm / 7.9 ft	944 mm / 3.1 ft	2,186 mm / 7.2 ft	749 kg / 1,652 lbs	2.8 m / 9.19 ft
SPC400	400 m ² / 4,306 ft ²	2,923 mm / 9.6 ft	944 mm / 3.1 ft	2,186 mm / 7.2 ft	929 kg / 2,049 lbs	3.3 m / 10.83 ft
SPC600	600 m ² / 6,458 ft ²	4,213 mm / 13.9 ft	944 mm / 3.1 ft	2,186 mm / 7.2 ft	1,423 kg / 3,138 lbs	4.6 m / 15.10 ft

* Extra water depth will be needed for gravity filtration.

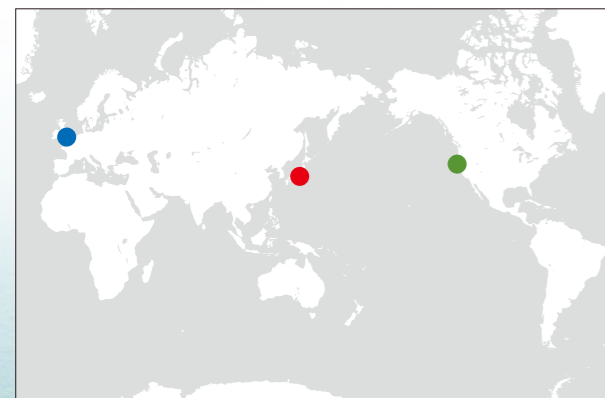
KUBOTA SP Series References



KUBOTA SMU models shown in this brochure received image processing. KUBOTA SMU design and specifications are subject to change without notice. "KUBOTA Submerged Membrane Unit" is a registered trademark of KUBOTA Corporation in Australia, Benelux, China, France, Germany, Hong Kong, Israel, Italy, Spain, Turkey, UK and USA.

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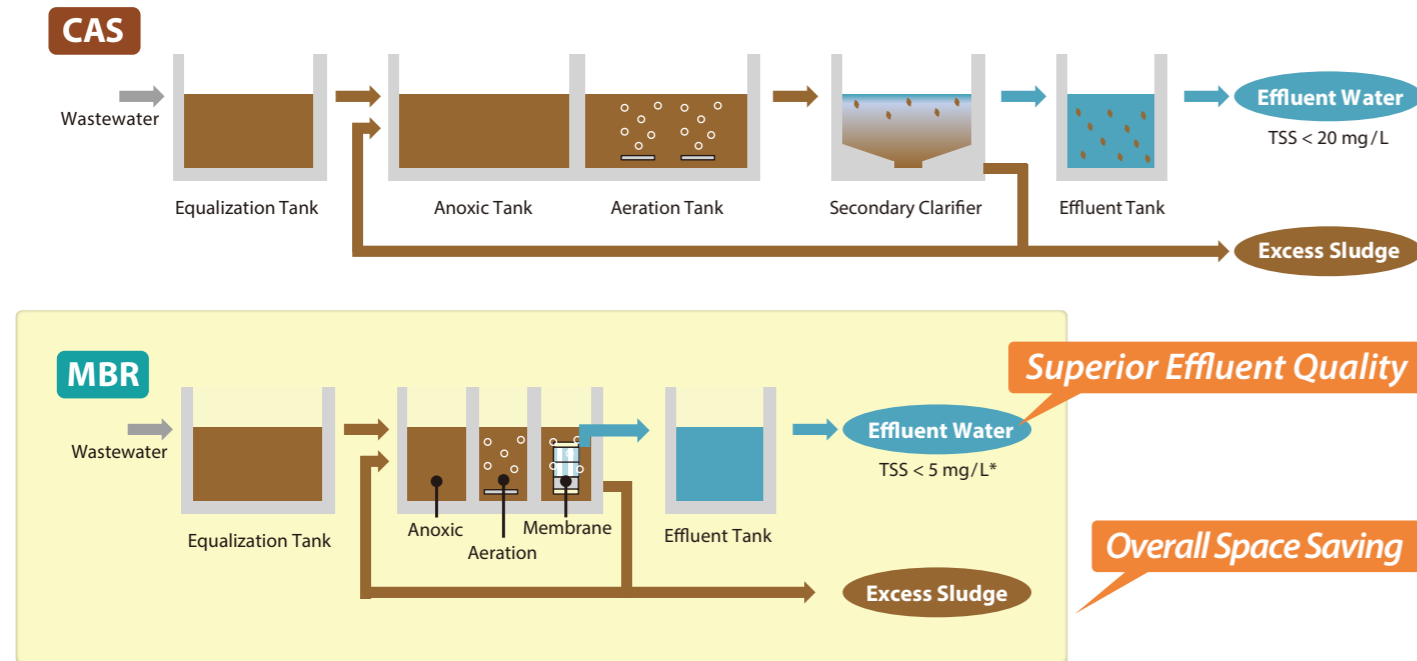
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KUBOTA Submerged Membrane Unit[®] SP Series



Membrane Bioreactor

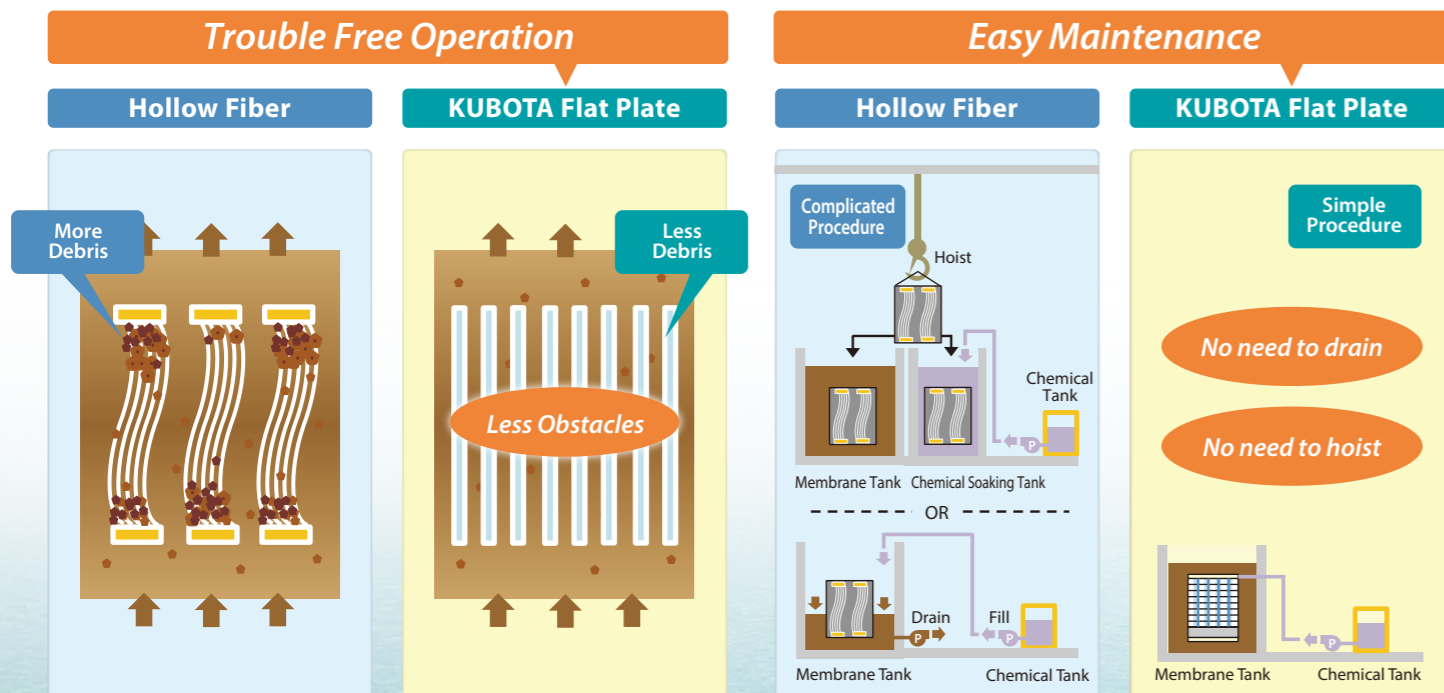
The Membrane Bioreactor (MBR) process is a proven wastewater treatment method which combines a biological treatment process and a membrane filtration process for final solid-liquid separation. The MBR perfectly eliminates the secondary clarifier and carry-over of the activated sludge. Therefore, the concentration of the activated sludge becomes higher and process tank volume becomes smaller compared to Conventional Activated Sludge (CAS) process.



* TSS < 5 mg/L is typical achievable values, not guaranteed values.

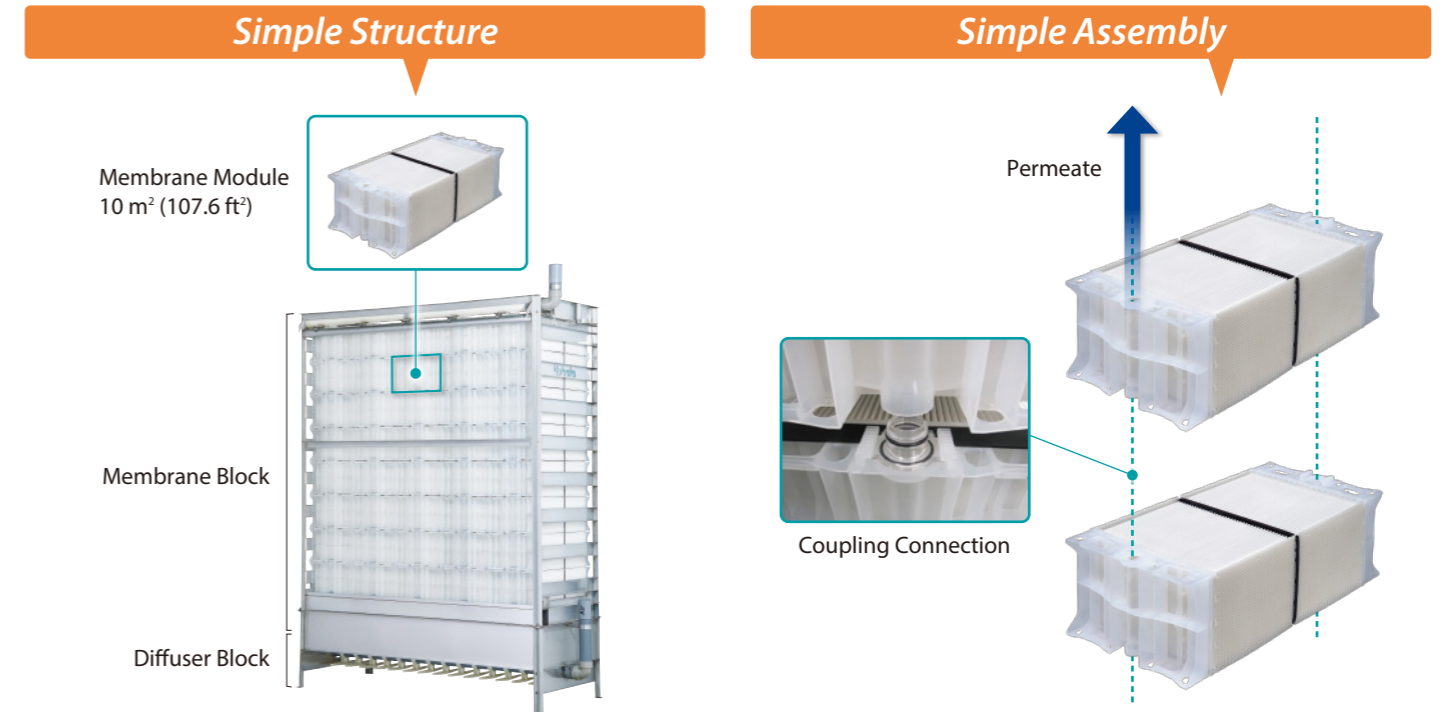
KUBOTA Submerged Membrane Unit®

The KUBOTA Submerged Membrane Unit® (SMU) is membrane equipment dedicated for the MBR process. The SMU can be directly submerged in activated sludge and allows only clean treated water to pass through its "Flat Plate" type membrane. The membrane sheet is made of chlorinated polyethylene with maximum (nominal) pore size of 0.4 μm (average: 0.2 μm) which blocks most microorganisms in the activated sludge. The "Flat Plate" configuration keeps the space between membranes clear and minimizes debris accumulation. *In-situ* chemical cleaning is the only maintenance typically required.



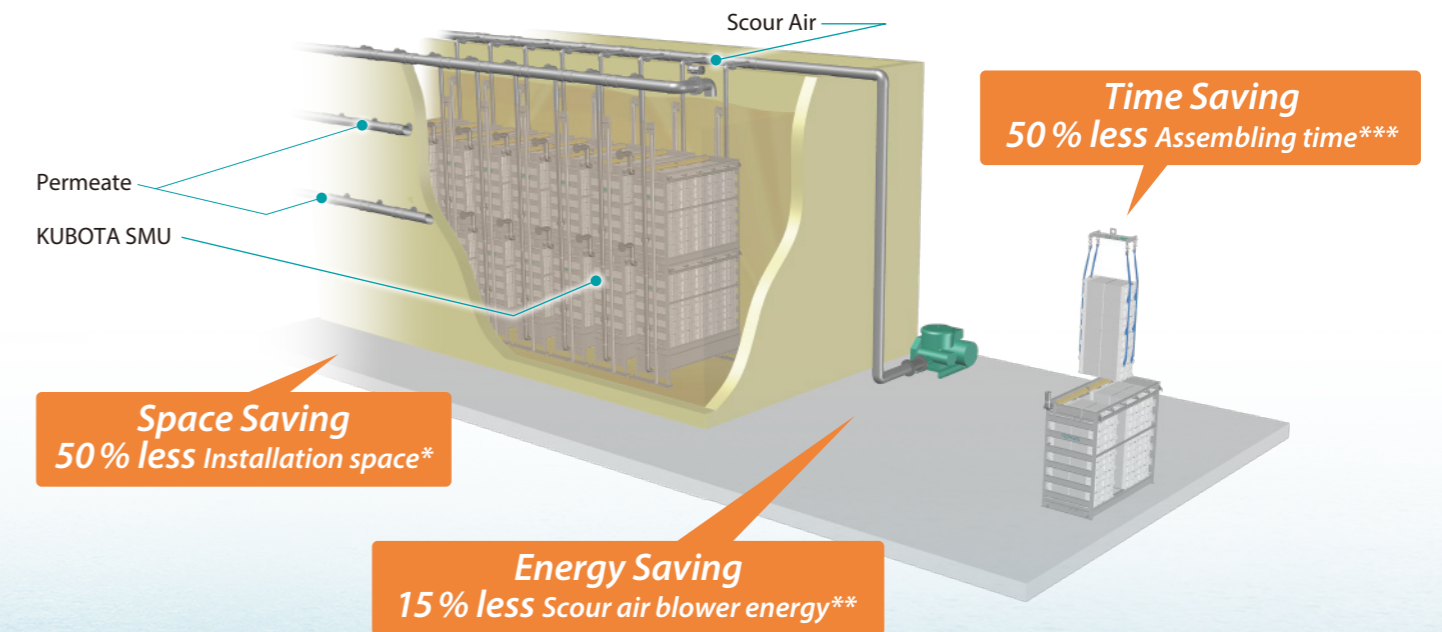
Structure of KUBOTA SP Series

The KUBOTA SP series is made up of SMU models optimized especially for **medium to large scale sewage treatment applications**. Forty (40) flat membrane plates having 10 m² of membrane area and permeate collection chambers are integrated into a compact "Membrane Module". This design improves packing density and reduces scour air requirements. Multiple Membrane Modules are assembled into a Membrane Block using simple coupling connections. The coupling connection also serves as a conduit to the permeate header. This structure simplifies the assembling procedure of the SMU during field maintenance work.



Advantages of KUBOTA SP Series

Based on its unique structure, the SP series reduces **required space**, **required scour air**, and **required assembling time during maintenance work**; all of which are important considerations for medium to large scale projects.



* Comparing SPC600 to RW400 in terms of membrane area per required tank space for installation [m²/m³].

** Comparing SPC600 to RW400 in terms of required scour air blower energy consumption per membrane area [kWh/m²].

*** Comparing SPC600 to RW400 in terms of assembling time per membrane area [min/m²].